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Standard

Registered Nurses (RNs) and Graduate Nurses (GNs) under the supervision of an RN with specified training, will administer blood or blood components. The entire blood transfusion process should be considered a safety zone process. Individuals participating should be identified and not interrupted during all steps.

Licensed Practical Nurses (LPNs) at Cayuga Medical Center (CMC) may assist Registered Nurses during the administration of blood and blood products by collecting vital signs and reporting any questionable findings such as changes in vital signs, signs or symptoms of blood reactions, and any other observations related to the administration of blood or blood products.

LPNs are not to be responsible for the administration of blood or blood products.

Purpose

To ensure the safe administration of blood or blood components.

Supporting Data

American Red Cross. (December, 2009). *Circular of information*. Retrieved from here.

Cayuga Medical Center Tissue & Transfusion Committee proceedings.

Circular of Information, American Red Cross, July 2010.

Lippincott, Williams & Wilkins. (2011). Transfusion therapy. *The Journal of Infusion Nursing: Infusion Nursing Standards of Practice*, 34(1S).

Roback, J., Combs, M. R., Grossman, B., & Hillyer, C. (2008). *Technical manual* (16th ed.). Bethesda, MD: American Association of Blood Banks.

Policy

Informed Consent

1. The ordering provider is responsible for informing the patient of risks, benefits of blood or blood component transfusion, complications and alternatives.
2. The information booklet *What You Should Know about Blood Transfusions* will be provided to the patient or designee prior to signing of consent. The nurse will discuss content of education materials with the patient or designee and document the patient or designee's acknowledgement and acceptance in the patient record.
3. The RN will ensure that the consent to transfuse is obtained and documented on the CONSENT TO TRANSFUSE form (form #13036), prior to blood product administration.
4. If the patient is unaware of the need for transfusion, does not understand, or is incapable of consenting, the provider must be notified. The RN should explain the need for documentation and

possibly additional discussion with the patient/family/guardian (in the case of minors). The ordering provider is then responsible for informed consent and subsequent documentation. The RN should document this conversation in the progress notes.

Obtaining Blood Products

1. A BLOOD PRODUCT TRANSFUSION ORDER/RELEASE FORM (form #13039) which is completed by the provider is required for every transfusion.
2. Only one unit of blood will be issued at a time from the blood bank, except in an emergency when more than one intravenous (IV) line is in use.
3. The courier must have a Blood Product Request slip with the patient's sticker and the signature of the RN in order to receive blood products from the blood bank. The form will be required for each unit of blood component received.
4. Only a Laboratory Technician or a Technologist may give out cross-matched blood, components, or derivatives – or remove them from the refrigerator.
5. Blood and blood components must be inspected at the time of issue.
 - A) Examine blood or blood components for hemolysis and the cells for discoloration.
 - B) Should blood or blood components appear abnormal in any way, do not remove from the lab; the blood will be placed in quarantine until it is evaluated.
6. Emergency release of blood: if urgency warrants release of blood before the cross match, the provider must sign the EMERGENCY RELEASE OF BLOOD FORM (form #13009).
7. Issuing blood or blood components
 - A) A courier must be a CMC employee. Volunteers cannot transport blood components.
 - B) A courier can only pick up blood or blood components for ONE patient at a time.
8. The Laboratory Technician and the courier will check the information on the Blood Product Request Slip with that on the cross match slip. They will verbally compare the following:
 - A) Patient name
 - B) Patient account number/date of birth
 - C) Unit number
 - D) Blood types
 - E) Expiration date
9. If all information matches, the Technician and Courier will document on the transfusion card attached to the blood component.
10. The unit will be placed in a large plastic bag and sealed for transport. If gloves are worn during the transport of blood and blood products, they must be changed prior to handling the blood and blood products.
11. **All blood and blood products must be handled with gloves on.**

Documentation

1. Transfusion card will be completed in its entirety by two RNs/GNs and upon completion returned immediately to the lab.
2. Blood component type and fluid volume infused will be noted in the Intake and Output record.
3. Patient tolerance will be documented in the medical record.

Miscellaneous

Refusal to Consent to Blood Transfusion and Blood Components

1. In the event that a patient refuses to receive blood transfusion, the patient and provider must complete the Refusal to Consent to Blood Transfusions and Blood Components forms.

Patient with Capacity to Make Medical Decisions

A patient shall be considered to have capacity to make medical decisions if the patient is:

- Conscious;

- An adult 18 years or older, or an emancipated minor (i.e. under 18 and married or pregnant or under 18 and a parent), who has not been declared legally incompetent;
- Able to understand the nature and severity of his/her medical condition;
- Able to understand the possible consequences of refusing the proposed treatment; and
- Able to make informed choices concerning the course of treatment.

Minor

A minor refers to a person who has not yet reached the age of eighteen (18) and is not authorized under the laws of the State of New York to give consent for themselves (parent of a child; is or has been married; is pregnant). A person who is not a minor is an adult.

Patient's Representative

If a patient is an adult and lacks capacity to make medical decisions, a duly appointed Health Care Proxy or agent may act in place and instead of the adult who lacks capacity if the proper procedure for determining lack of capacity has been followed in the Medical Center. Patient's representative also means with respect to a minor patient the parent or guardian. The authorization to give consent for a minor's care does not carry with it the right to refuse medically necessary life sustaining treatment on behalf of the minor.

Procedure

1. Whenever a provider or hospital employee becomes aware that a patient or representative will not consent to blood transfusions on the basis of religious beliefs or other reasons will not be given or has been refused, the administrator on call of the Medical Center (or his/her designee) shall be immediately notified.
2. If, before lacking capacity, a patient or representative has informed his/her provider that he/she will not consent to blood transfusions on the basis of religious beliefs or other reasons, such patient shall be deemed to have refused consent for the purpose of this policy. The provider shall note the facts and circumstance of the patient's decision in the medical record.
3. The attending physician shall discuss with the patient or the patient's representative or a person authorized under the laws of the State of New York to consent on behalf of a minor, the consequences of refusing to consent to blood transfusions. The provider shall also discuss with the patient or patient's representative or such authorized person the alternatives to receiving blood transfusions including:
 - A) Refusing to undergo the recommended medical treatment; the risks of so refusing; the alternate procedures; if any, and the risks thereof;
 - B) Obtaining and storing the patient's own blood in preparation for any necessary transfusion during the recommended medical treatment;
 - C) Transferring the patient to another hospital; or
 - D) The patient or patient's representative or such authorized person obtaining a court order.This discussion shall be noted in the patient's medical record.
4. If, after receiving information as to the consequences and alternatives, the patient or patient's representative continues to refuse consent to blood transfusions, hospital management shall be notified and legal counsel shall be consulted prior to any medical procedure commencing.
5. After consulting with the patient's attending physician and Medical Center legal counsel, the hospital management shall determine whether to:
 - A) Seek a court order permitting the transfusion;
 - B) Refuse to permit the recommended medical procedure until such time as the patient or patient's representative obtains a court order supporting the right to refuse the transfusion; or
 - C) Attempt to transfer the patient to another facility which will agree to perform the requested procedure.

6. No blood transfusions shall be given without the consent of the patient or patient's representative. In all cases of adult patients, the general consent of the patient or patient's representative to the procedure shall be deemed to include the consent to blood transfusions if necessary during the procedure, unless the Medical Center or somebody on behalf of the Medical Center or the attending physician has actual information that such consent is not given or is denied.
7. If either an adult patient or the patient's representative has not actually refused consent but the Medical Center has information from other persons that would reasonably lead the Medical Center to conclude that the patient would not consent to said blood transfusion, the Medical Center shall not continue with the medical procedure unless in the provider's judgment an emergency exists and the person is in immediate need of medical attention and the attempt to secure consent would result in delay of treatment which would increase the risk to the patient's life or health. Where consent to transfusions is clearly refused, the Medical Center may proceed to obtain a court order.
8. If the patient is a minor, only those authorized by the laws of the State of New York to give consent for a minor may consent to the transfusion of blood to a minor. General consent without raising a question by such authorized person shall be deemed to consent to the transfusion of blood to a minor. No elective procedure shall be performed on a minor where there is reasonable information to believe that consent to blood transfusion to the minor would not be given by an authorized person. No emergency procedure shall be performed on a minor for whom consent for blood transfusion has not been given or has been withdrawn or refused unless in the provider's judgment an emergency exists and the minor patient is in immediate need of medical attention and an attempt to secure consent would result in delay of treatment which would increase the risk to the minor patient's life or health. Where consent to blood transfusions for a minor is refused, the Medical Center shall make all reasonable efforts to obtain a court order before any blood transfusions are given.
9. The Medical administrator on call or her/his designee shall be consulted if there are any questions relating to this policy.

Return of Unused Blood

1. Issued blood should be started within 30 minutes after it is taken from the blood bank refrigerator. If it is determined that the blood is not going to be transfused, it must be returned to the blood bank within 30 minutes of release time.
2. The blood transfusion must be completed within four hours from time of blood bank release. Do not store blood in any refrigerator on the floor.

Disposal of Containers

1. Remove transfusion card and process per protocol, discard container in biohazard container.

Interfacility Transfers

1. Blood products accompanying a patient from another facility that is not currently infusing, may NOT be transfused. Transport unused blood product to the blood bank.

Warming of Blood

1. It is not necessary to warm blood before transfusion except in circumstances such as:
 - A) Massive or rapid transfusion (greater than 50 ml/minute).
 - B) Occasionally in exchange transfusion of the newborn.
 - C) Patients with cold agglutinins.
2. Once blood has been warmed it cannot be returned to the blood bank for future transfusion.
3. Blood should only be warmed in an approved blood warmer, not by placing it near a heat source.
*The temperature of the warmer needs to be documented on the transfusion card at the beginning of the transfusion.

Use of Blood Filters

1. To help prevent infections, filters must not hang for more than four (4) hours from the start of the transfusion.
2. All blood components, except albumin, must be transfused through a filter designed to remove clots and aggregates (generally a standard 170- to 260-micron filter)
3. Platelet filters - (can be used for one platelet pool or one pheresis) Must be used on all platelets – provider order not needed. The filter will be provided by the blood bank when issuing platelets.

Administration of Blood

Equipment

- Normal saline intravenous (IV) solution only (a 250 or 500 ml bag is sufficient).
- Y-type blood transfusion tubing or primary pump tubing and a secondary blood set.
- Basic venipuncture equipment as specified in venipuncture procedure (See IV Therapy – Peripheral Intravenous Line Insertion, Care, and Maintenance procedure).
- Exam gloves.

Transfusion of Packed Cells or Whole Blood

1. Review medical record for complete provider's order and consent to transfuse.
2. Obtain and record baseline temperature, pulse, respirations, and blood pressure before starting procedure. Document on Transfusion Card. Review or perform nursing systems assessment.
3. If blood warmer is used, document initial temperature of blood warmer on Transfusion Card prior to transfusing. (See IV Therapy Blood/Fluid Warmer policy). If blood warmer is not used, write N/A on the Transfusion Card.
4. Perform venipuncture, using a 20 gauge or larger needle for packed red blood cells or whole blood. If necessary, a 22 or 24 gauge IV catheter may used. Other blood components, such as platelets, cryoprecipitates, fresh frozen plasma, IVIg or albumin may also infuse through smaller needles. Examine the blood bag for contamination.
5. Prepare Y-tubing by closing all clamps and spiking the normal saline container.
6. Hang saline container on an IV pole and open the clamp just below the saline.
7. Fill the drip chamber until the filter is completely covered with saline, tapping the filter to remove air bubbles.
8. Prime the tubing by opening the flow rate control clamp.
9. When the solution reaches any Y-injection sites and the pump (second) chamber, invert the Y-injection sites and pump chamber so the ALL air is expelled, tapping the Y-injection site to remove air bubbles.
10. Attach IV fluid to clave clamp and run at ordered rate, a minimum of 3 mls/hour.
11. If using a pump to administer the blood, run saline through pump tubing per manufacturer's instructions.
 - A) Obtain blood from blood bank. *Wear gloves when handling blood bag.*
12. A two-tier verification should be implemented on inpatient floors:
 - A) Before taking blood into the patient room, the two nurses must verify the blood against the order and chart for correct patient name, blood type, type of blood product. No product should enter the patient room until it is verified.
 - B) Inside the room, verification must occur matching the blood to the patient with two identifiers (name, date of birth [DOB]); verbally and against the patient wrist band.
 - C) The blood must not be hung before the verification has occurred. If the nurse is interrupted for something more pressing, the incoming nurse will need to re-verify that the product is correct before transfusing.
13. Perform the 2-RN bedside checklist:
 - A) Verify the provider's order.
 - B) Verify that the consent has been signed by the patient (or appropriate representative).
 - C) Check the blood bag number, expiration date, blood type and Rh.

- D) Two RNs must identify the patient at the bedside by asking the patient for his or her name and date of birth. This is compared to the patient's armband and blood Transfusion Card.
 - E) Transfusion card will be completed in its entirety by two RNs/GNs and upon completion returned immediately to the lab.
 - F) *Wear gloves when handling blood bag.*
14. Hang the blood bag. Turn off saline, and open the clamp below the blood bag. Make sure the filter is completely immersed in fluid so that the blood does not drip directly onto the filter. This could cause hemolysis of the cells. Alternatively, attach the blood secondary set to the blood bag, prime and attach to primary tubing.
 15. Ensure that entire length of pump/blood tubing is completely filled with blood product prior to attaching to patient. This will ensure that the start time documented on the Transfusion Card represents the time the blood actually started infusing into the patient.
 16. During the first 15 minutes of the transfusion, the blood should run slowly (less than 100 ml/hr) and the nurse should closely observe the patient for adverse effects. Record vital signs before the transfusion is started, after the first 15 minutes of the transfusion and after the unit is completed on the blood Transfusion Card.
 17. If the patient shows no signs or symptoms of a possible reaction, the rate of the transfusion may then be increased. Most patients not in congestive heart failure or fluid overload can tolerate one unit of packed cells in 1 1/2 to 2 hours. A unit of blood and any associated tubing should not hang more than four (4) hours from the time it was issued from the Blood Bank.
 18. Upon completion of the transfusion, complete the remaining spaces on the Transfusion Card: date and time down, RN completing the transfusion, patient's reaction (if any), and amount infused. Record amount infused per unit protocol. Place the pink copy of the Transfusion Card in the patient record.
 19. Return the yellow copy of the Transfusion Card to the Blood Bank via the pneumatic tube system, immediately after transfusion. Disconnect the blood bag and all associated tubing from the patient. The blood bag and all associated tubing will be discarded in the red biohazard trash, provided a suspected transfusion reaction has not occurred. New tubing must be hung for any further infusions.
 20. In the event of an adverse reaction, refer to the Blood Transfusion Reaction Policy.
 21. Catheter size and blood transfusion
 - A) The only time that an 18 or 20 gauge would be required for blood product infusion is when large amounts of blood must be transfused rapidly, such as during trauma or during some surgeries. For routine transfusion, a 22 gauge or even a 24 gauge is acceptable. The primary consideration should be the size of the patient's veins and not an arbitrary catheter size.
 - B) Blood is frequently transfused through 24-gauge catheters in neonates and pediatric patients and may be utilized for adults as well.
 - C) The flow rate through a smaller catheter will be slowed slightly, however this should not have any impact on the clinical outcome, especially for 22 gauge catheters. If the patient's veins are small enough to allow only for a 24 gauge catheter, it is recommend that the blood bank split the unit into 2 aliquots. Obtain the first half of the unit to transfuse and leave the second half in the blood bank. This will allow you to infuse one unit over a maximum of 8 hours if necessary - 4 hours for each aliquot. For transfusion through a 24 gauge catheter, choose gravity infusion and do not use an infusion pump. Forcing the red blood cells through the smaller size catheter could result in some cell damage. Allowing them to flow by gravity allows time for the cells to change shape as they naturally do when flowing through small capillaries.
 - D) Also, don't expect the same flow rate for blood through a 20 gauge lumen on a Peripheral Inserted Central Catheter (PICC) as you would through a 20 gauge short peripheral catheter. The reason is the length of the PICC. Length adds resistance to fluid flow. A one-

inch 20-gauge peripheral IV catheter will allow for more rapid flow rates than a 20-gauge PICC catheter that is 25 cm long.

Massive Transfusion Protocol

Definitions of Massive Transfusion include: Blood loss rate of 150 ml/min, $\frac{1}{2}$ of total blood volume replaced over three hours, total blood volume replaced over 24 hours, and greater than 10 units of RBCs transfused over 24 hours. The blood bank has an adjusted blood release protocol to accommodate the emergent needs of the case and to ensure inclusion of platelets, fresh frozen plasma (FFP) and cryoprecipitate in the treatment protocol. The Massive Transfusion Protocol can be initiated with a phone call to the laboratory. Please refer to the Massive Transfusion Protocol (MTP) policy located in the laboratory.